



Tennessee Breastfeeding Hotline FY18 Annual Report

Submitted to:

State of Tennessee, Department of Health

Prepared by:

Sandra Madubonwu MSN, CLC, RN

Helen Scott, RN, IBCLC, RLC

Christina Underhill, Ph.D.

August Marshall, M.A.

Of:

Methodist Le Bonheur Community Outreach

600 Jefferson Ave

Memphis, TN 38105

July 2017 to June 2018



Executive Summary

Year 5: July 2017 to June 2018

The Tennessee Breastfeeding Hotline (TBH) is a telephonic breastfeeding support program that is free to nursing mothers, their families and partners, expectant parents, and to health care providers. Participants who call the TBH speak with a certified lactation professional who collects the mother's and baby's information using self-reporting techniques. This information is gathered for the purpose of making assessments, attending to the client's individual needs, referring the client to available resources and ensuring that the lactation professional is able to follow-up with the client.

Lactation professionals offer strategies to empower clients to breastfeed, identify barriers to successful breastfeeding, and provide techniques to cope with and overcome barriers to breastfeeding. Participants receive individualized counseling for common breastfeeding issues. If the caller's issues are beyond the scope of the lactation professional's expertise, or require treatment, the mother is directed to a health care provider or an outside agency better able to offer the necessary support. Some participants receive a 24-hour follow-up call, if the caller's situation requires additional support and encouragement.

The measurement period for this report is July 2017 through June 2018, but the report may make comparisons to previous quarters. Lactation professionals collected quantitative data using a conditional questioning workflow. These workflow data analyzed characteristics such as breastfeeding trends, call volume and repetition, and patterns in caller's age, race, and ethnicity. After the initial call, TBH also conducts follow-up calls that occur at 4, 8, and 12 weeks to assess self-reported outcomes and client satisfaction with services. Over the course of the measurement period, these data are collected to aid in the construction of a continuous quality improvement plan, vital in ensuring the sustainability and productivity of the TBH.

Participants receive follow-up calls at 4, 8 and 12 weeks for two purposes. First, it is to encourage the women to continue breastfeeding. In Tennessee, the percentage of breastfed infants that were supplemented with formula before three months was 34.9%¹. During Year 5, the TBH received 6,337 calls to the TBH. When asked about intention to continue breastfeeding, 98.2% of callers responded that they intended to continue breastfeeding (pg. 22, Table 14A). At 4-week follow-up, 74.1% of the moms reached were still breastfeeding (pg. 23, Table 14B).

The second purpose of the three follow-up calls is to acquire necessary information used to determine the effectiveness and quality of the program from the viewpoint of the user. For each follow-up call, clients are asked to rate overall services received from the TBH. During Year 5, all callers for each follow-up period

¹ Nutrition, Physical Activity and Obesity Data, Trends and Maps web site. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (CDC), National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity and Obesity, Atlanta, GA, 2015. Available at https://nccd.cdc.gov/dnpao_dtm/rdPage.aspx?rdReport=DNPAO_DTM.ExploreByLocation&rdRequestForwarding=Form (Category = Breastfeeding; Topic = Breastfeeding Behavior; Year = 2014)

reported being satisfied or very satisfied with services received (pg. 24, Table 15). Similarly, when asked about the likelihood to recommend TBH services to another person, all callers for each follow-up period reported that they were likely or very likely to refer someone else to the hotline (pg. 24, Table 15).

Clients are welcome to call the hotline any time they need support, regardless of language barriers. An auto attendant greets callers in both English and Spanish. Interpretive services are available for more than 200 languages. Special operators are available to assist hearing-impaired callers.

Data Limitations

TBH understands and balances the need to provide an important service as well as the desire to collect data for evaluation. TBH staff attempt to capture complete information from all of its callers. However, missing data may be present due to TBH's priority to high quality service, repeat callers, or non-response from a caller. Also, TBH is available to a wide range of individuals who may seek breastfeeding support, so some questions may not be applicable to all callers.

Introduction

Breastfeeding is widely accepted as an effective strategy to promote positive health outcomes for both mothers and their babies. Despite growing data on these benefits, 18.9% of babies born in Tennessee were never breastfed, according to the Centers for Disease Control and Prevention's most recent National Immunization Survey (NIS)². By the time their baby reached 6 months of age, the proportion of Tennessee mothers breastfeeding decreased from 81.1% to 57.0%. Although there have been improvements, Tennessee rates for breastfeeding initiation and 6 months duration remain slightly lower than Healthy People 2020's goal of 81.9% and 60.6%, respectively.

This report was created to examine how the TBH is currently fostering the healthy development of children by promoting and supporting the practice of breastfeeding in Tennessee. By addressing common barriers to breastfeeding in the state, the hotline reinforces the national goal of higher breastfeeding rates, over longer periods of time. Prevalent barriers to breastfeeding include³:

- Lack of knowledge
- Lactation problems
- Poor family and social support
- Social norms
- Embarrassment
- Employment and child care
- Health services

The TBH addresses these obstacles in a multifaceted approach designed around the individual needs of each client. The primary medium for doing so is through International Board Certified Lactation Consultants (IBCLC) and/or Certified Lactation Counselors (CLC). These lactation professionals answer questions and provide information about:

²Center for Disease Control, 2015/2016 National Immunization Survey State Estimates. https://www.cdc.gov/breastfeeding/data/nis_data/rates-any-exclusive-bf-state-2014.htm

³ U.S. Department of Health and Human Services. Executive Summary: The Surgeon General's Call to Action to Support Breastfeeding. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General; April 20, 2011.

- Inadequate milk production
- Nursing rejection by baby
- Breast or nipple pain
- Medications and breastfeeding
- Working and breastfeeding
- Breast pumps and rentals
- Breastfeeding in public
- Tennessee laws that relate to breastfeeding
- Weaning
- State-approved online breastfeeding support groups
- State-approved online breastfeeding resource material

The topics of information covered by the lactation professionals acknowledge the barriers to breastfeeding experienced by women nationally.

Caller Demographics

The target population of the TBH includes nursing mothers, their families and partners, expectant parents, and health care providers. During Year 5, 77.6% of the callers were white, 15% were black, and 2.4% identified as Asian, American Indian or Alaskan Native, or native Hawaiian/Pacific Islander. In addition, 5.1% of callers were of multiple or mixed race (Table 9B). According to the United States Census Bureau, 77.8% of Tennessee residents are white, 16.8% are black, and 2% are Asian, American Indian or Alaskan Native, or native Hawaiian/Pacific Islander. Two percent of Tennessee residents are of multiple or mixed race. Hispanic women comprised 4.3% of the callers for Year 5 (Table 9C). When examining age, the hotline received the highest proportion of calls (41.8%) from callers between the ages of 26 and 30 (Table 9A).

Notable Findings

The TBH received a number of interesting calls this year, which were covered in more detail in the Year 5 quarterly reports. Select calls included:

1. *A WIC counselor in Tennessee called on behalf of a participant to inquire if a ketogenic diet would help her 5 month old baby, who had a history of seizures. The lactation professional consulted with Dr. Stiles, who advised that the mother contact her physician before attempting this diet while breastfeeding.*
2. *A mother called in regarding her alpha-gal allergy (an allergy to mammalian meat and dairy; transmitted by infected Lone Star ticks). She had recently had an anaphylactic reaction, and wanted to know if it could be caused by contact with donor milk (due to low production, she was supplementing her baby's feedings). The lactation professional consulted with Dr. Stiles, who recommended an article about alpha-gal, which was shared with the mother. The lactation professional also discussed methods to improve the mother's own supply.*
3. *A mother called with questions about pregnancy while breastfeeding. She was currently breastfeeding her son and noticed her supply had decreased after realizing she was pregnant*

again. The lactation professional congratulated her on her pregnancy and commitment to breastfeeding, and reviewed some methods to improve breastmilk production.

4. *A mother reached out to the TBH with questions about adoption and re-lactation. The mother had previously tandem breastfed her biological and adopted child, and was in the process of adopting a third child and was interested in re-lactation so that this child could be breastfed as well. The lactation professional praised the mother's commitment to breastfeeding and reassured her that with her extended breastfeeding history, re-lactation was possible.*

Call volume for the TBH increased about 3.2% overall from Year 4 to Year 5. Call volume was an average of 528 calls a month, reaching its highest call volume in August 2017 with 595 calls. While hospitals remained the most common referral source, directing just over half of all calls to the TBH, the popularity of websites and online search engines (e.g. Google) increased to 24.5% in Year 5 (compared to 12.1% in Year 4). The TBH continues to receive a large influx of out-of-state callers: about 22% of TBH calls in Year 5 were from out-of-state callers (up from 15% in Year 4). These callers were assisted, and then directed to national resources such as the National Breastfeeding Helpline (available from 9am to 5pm [EST] Monday through Friday) and local or state La Leche League Leaders (the LLL 24/7 helpline was eliminated due to funding).

In Year 5, the hotline continued to be highly well-received by callers overall despite the aforementioned challenges. Just over a quarter (26.1%) of TBH callers were repeat callers, suggesting that the mothers found the information helpful and continued to reach out when they had additional questions. TBH also had callers requesting support with their 2nd, 3rd, or even 4th baby after receiving assistance from the TBH with their first child. Every baby is unique, and therefore breastfeeding another baby can also bring unique situations, even if the mother has breastfed previously. Finally, feedback from follow-up calls was overwhelmingly positive. Some individuals even reached out to the state specifically to express their pleasure that this type of service was being offered.

Conferences, Continued Education, and Publications

In July 2017, the Journal of Nutrition Education and Behavior published the article "Statewide Breastfeeding Hotline Use Among Tennessee WIC Participants," within its WIC and Breastfeeding Supplemental Issue. The article was authored by Sierra Mullen and co-authored by Dr. Michael Warren and August Marshall, representing a collaborative effort between the Tennessee Department of Health and the TBH.

During Year 5, the TBH had multiple opportunities to attend and present at various conferences. Conferences attended and/or presented by hotline staff include:

- World Breastfeeding Week Grand Rounds (Memphis, TN)
- Connecting for Children's Justice Conference (Murfreesboro, TN)
- Memphis Latch On (Memphis, TN)
- Breastfeeding Strategic Planning Meetings (Nashville, TN)
- Tennessee Hospital Association Leadership Conference (Nashville, TN)
- Tennessee Initiative for Perinatal Quality Care Conference (Franklin, TN)
- Tennessee Breastfeeding Coalition Meetings (Nashville, TN)
- Tennessee Breastfeeding Symposium (Chattanooga, TN)

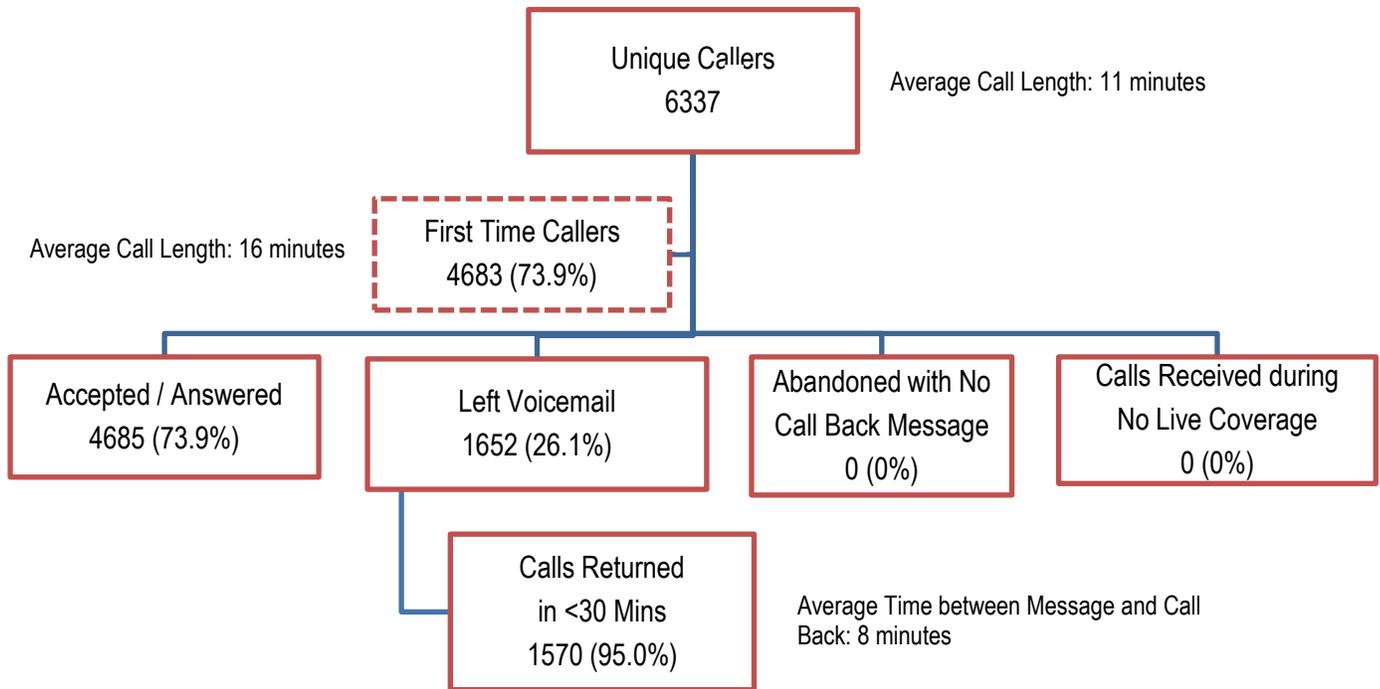
For continuing education, TBH's lactation professionals regularly shared relevant articles and resources during monthly staff meetings and participated in journal club. TBH staff also participated in regular Memphis Area Lactation Consultation Association (MALCA) meetings.

Finally, a number of TBH staff received their IBCLC certification or re-certification: Elizabeth Pletz (October 2017), Crystal Gilreath (April 2018), Christie Evans (April 2018) and Helen Scott (Recertification). At the time of this report, the total number of IBCLCs staffed with TBH is 11 (10 staff members and the medical consultant), more than doubling the number of IBCLCs employed on the TBH over its 5-year period at Le Bonheur.

Tables and Figures

(1) Call Data

Figure 1. Tennessee Breastfeeding Hotline Call Flow, Year 5 (July 2017 – June 2018)



The flowchart above illustrates calls received to the Tennessee Breastfeeding Hotline from July 2017 through June 2018. For Year 5, the TBH had 6,337 unique callers. Of those total unique callers, 4,683 (73.9%) were first-time callers to the TBH. Average call length for all calls was 11 minutes; first-time callers were slightly longer (16 minutes).

Of all calls received, 4,685 (73.9%) were answered and accepted live by TBH staff and 1,652 (26.1%) callers left a voicemail for TBH staff. About 95% of calls were returned within 30 minutes of initial voicemail.

(2) Call Volume & Time

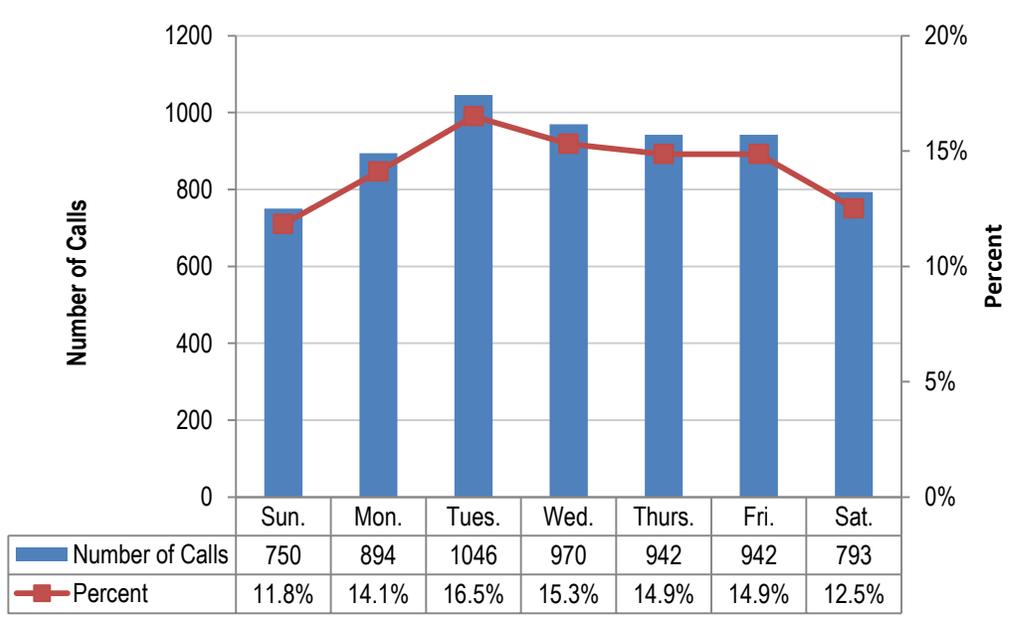
Table 2A. Call Volume, by Time of Day (N=6337)

Time of Call	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
12 AM - 7 AM	165	155	143	132	595	9.4%
8 AM - 12 PM	522	498	444	405	1869	29.5%
1 PM - 6 PM	654	644	651	609	2558	40.4%
7 PM - 11 PM	343	310	333	329	1315	20.8%
TOTALS:	1684	1607	1571	1475	6337	100%

Note: Percent total may not sum to 100 due to rounding.

During the TBH’s 5th year, the majority of calls (40.4%) were received between 1 PM and 6 PM. About 70% of calls were received during the traditional workday (8AM – 6 PM).

Figure 2. Call Volume, by Day of Week (N=6337)



During Year 5, TBH experienced its highest call volume on Tuesdays. Lowest call volume occurred on Sundays.

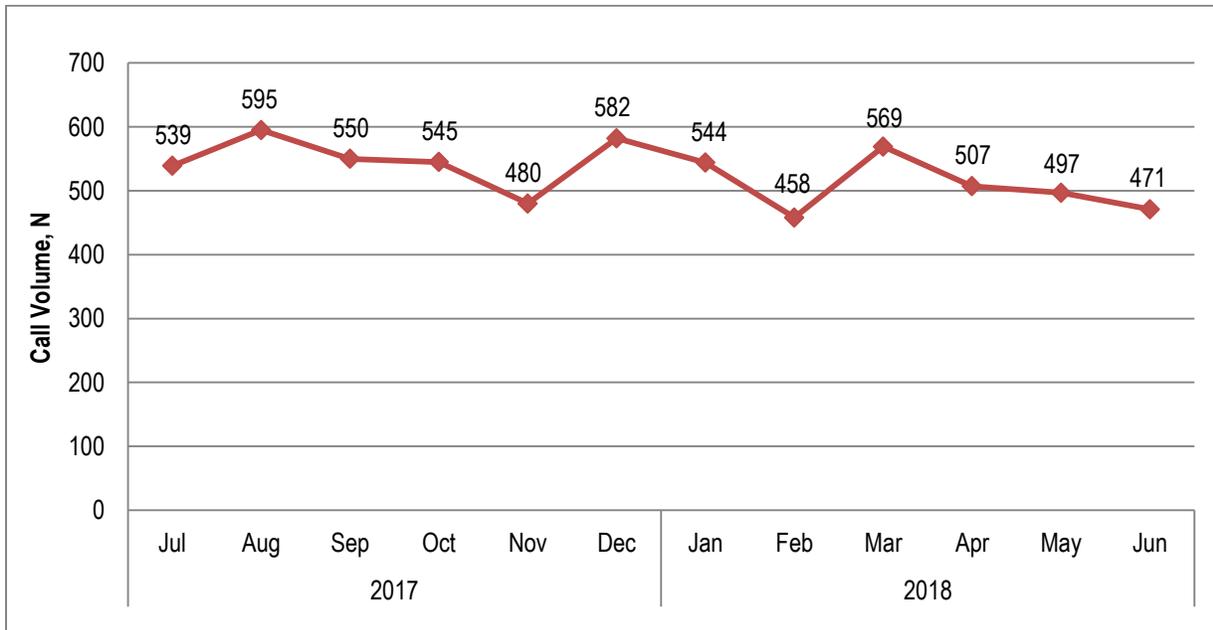
Table 2B. Call Volume, by Quarter (N=6337)

Month	Number of Calls	Percent
1 st Quarter (July 2017 – September 2017)	1684	26.6%
2 nd Quarter (October 2017 – December 2017)	1607	25.4%
3 rd Quarter (January 2018 – March 2018)	1571	24.8%
4 th Quarter (April 2018 – June 2018)	1475	23.3%
TOTALS:	6337	100%

Note: Percent total may not sum to 100 due to rounding.

Call volume within Year 5 was highest in the 1st quarter. Compared to Year 4, call volume increased by 3.2%.

Figure 2. Call Volume Trend, Year 5



Call volume was highest in August 2017 (595) and lowest in February 2018 (458).

(3) Call Length**Table 3. Number and Proportion of Calls within Year 5, by Call Length (N=6337)**

Length of Call	Year 5 Totals	Year 5 Percent
0-9 minutes	3268	51.6%
10-19 minutes	2269	35.8%
20-29 minutes	602	9.5%
30-39 minutes	142	2.2%
40-49 minutes	33	0.5%
50-59 minutes	10	0.2%
1 hour or more	13	0.2%
TOTALS:	6337	100%

During Year 5, 87.4% of calls lasted less than 20 minutes. Only 13 calls lasted more than an hour.

(4) Referrals**Table 4A. Referral Source Reported by Caller (N=4512)**

Referral Source	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
Hospital	756	781	666	550	2753	61.0%
Website/Search Engine	188	264	293	362	1107	24.5%
Provider's Office	112	106	118	85	421	9.3%
WIC Clinic	32	28	28	31	119	2.6%
Family or Friend	32	21	23	27	103	2.3%
Brochure	2	1	2	4	9	0.2%
TOTALS:	1122	1201	1130	1059	4512	100%

Not applicable n=1825

Note: Percent total may not sum to 100 due to rounding.

During the call, clients were asked how they heard about the TBH. Hospital was the most common referral source, referring 61% of callers, followed by information found on a website or via search engine (24.5%).

Table 4B. Number and Proportion of Callers Referred to Provider by the Hotline (N=6228)

Referral Status	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
No referral given	1526	1493	1456	1373	5848	93.9%
Referred to own provider	113	83	88	84	368	5.9%
Referred to other provider in the vicinity	4	3	4	1	12	0.2%
TOTALS:	1643	1579	1548	1458	6228	100%

Missing n=109

The TBH captured information about whether the caller was referred to a provider for their issue. Overall, 6.1% of callers were referred to a provider, predominantly their own.

Table 4C. Number and Proportion of Callers Referred for Immediate Medical Attention (N=6129)

Medical Reference Given	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
No	1591	1533	1496	1400	6020	98.2%
Yes	38	26	25	20	109	1.8%
TOTALS:	1629	1559	1521	1420	6129	100%

Not applicable n=208

In Year 5, 109 (1.8%) callers were advised by the lactation professional to seek immediate medical attention.

Table 4D. Number and Proportion of Callers Referred to a Local Lactation Professional (N=5799)

Referred to a Lactation Professional	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
No	1413	1331	1259	1206	5209	89.8%
Yes	135	151	176	128	590	10.2%
TOTALS:	1548	1482	1435	1334	5799	100%

Not applicable n=538

During Year 5, the TBH advised 590 (10.2%) callers to seek out a local lactation professional.

(5) First Time or Repeat Caller**Table 5. TBH Caller by Call Type (N=6337)**

Caller Type	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
First Time	1270	1185	1130	1098	4683	73.9%
Repeat Caller	414	422	441	377	1654	26.1%
TOTALS:	1684	1607	1571	1475	6337	100%

The majority (73.9%) of calls received were from first time callers.

(6) Interpretive Services**Table 6. Use of Interpretive Services (N=6337)**

Interpretive Services	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
Not Used	1663	1580	1557	1465	6265	98.9%
Used	21	27	14	10	72	1.1%
TOTALS:	1684	1607	1571	1475	6337	100%

During Year 5, only 1.1% of callers required interpretive services.

(7) Caller Location**Table 7. Number and Proportion of Calls, by TN Department of Health Regions (N=4710)**

Region	Total Calls	Percent
Davidson	1270	27.0%
Shelby	938	19.9%
Mid-Cumberland	869	18.5%
Knox	306	6.5%
Hamilton	236	5.0%
East	230	4.9%
South Central	222	4.7%
West	189	4.0%
Upper Cumberland	142	3.0%
Northeast	115	2.4%
Southeast	86	1.8%
Sullivan	58	1.2%
Madison	49	1.0%
TOTALS:	4710	100%

Missing n=223

Note: Percent total may not sum to 100 due to rounding.

The table above depicts call volume by the Tennessee Department of Health regions during Year 5. There were a total of 4,933 (77.8%) calls from Tennessee residents. Of the Tennessee residents for whom a county was reported, approximately 65% of Tennessee resident calls to the TBH were from the Davidson, Shelby, and Mid-Cumberland regions.

Figure 3. Call Volume, by Caller's County of Residence, Year 5

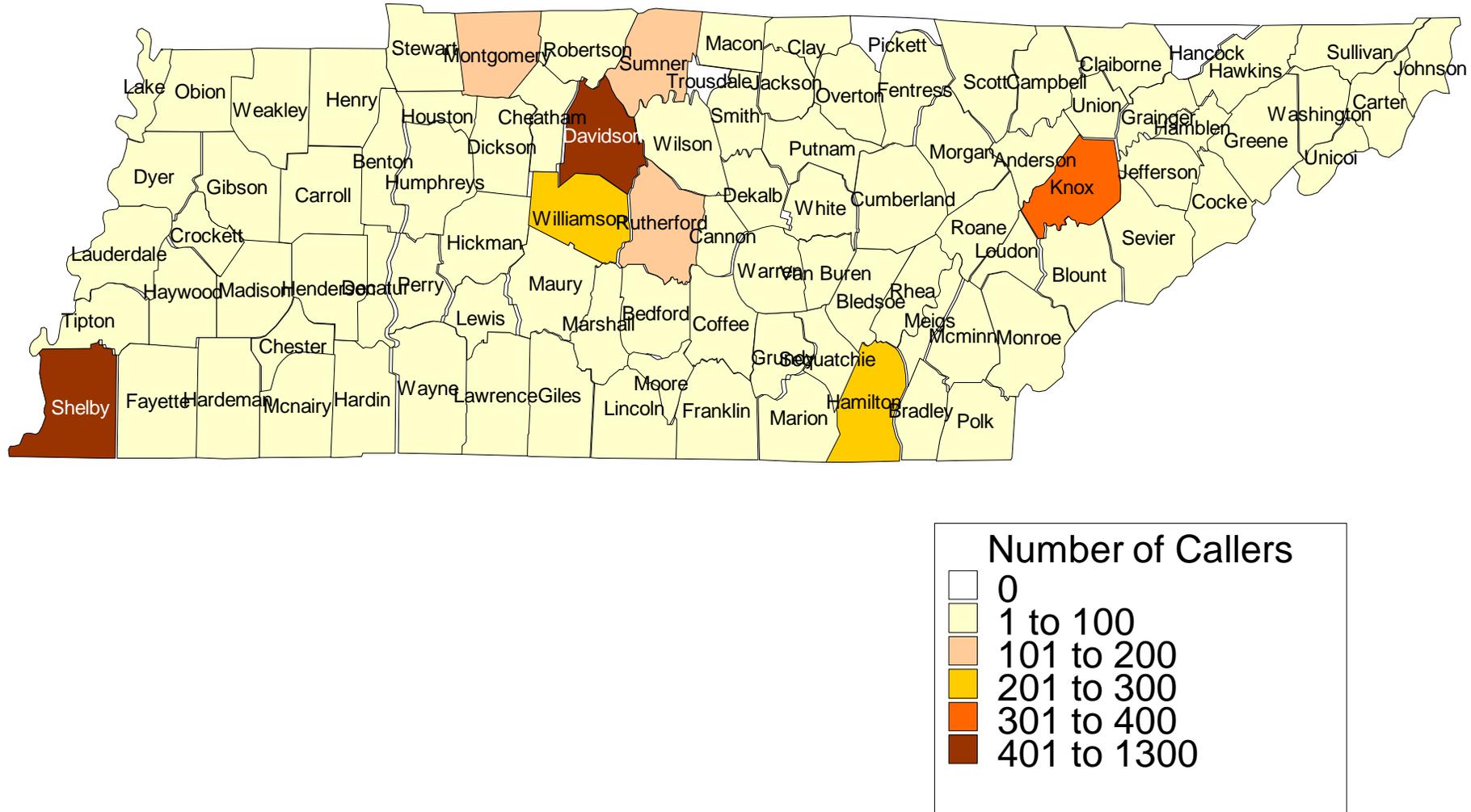
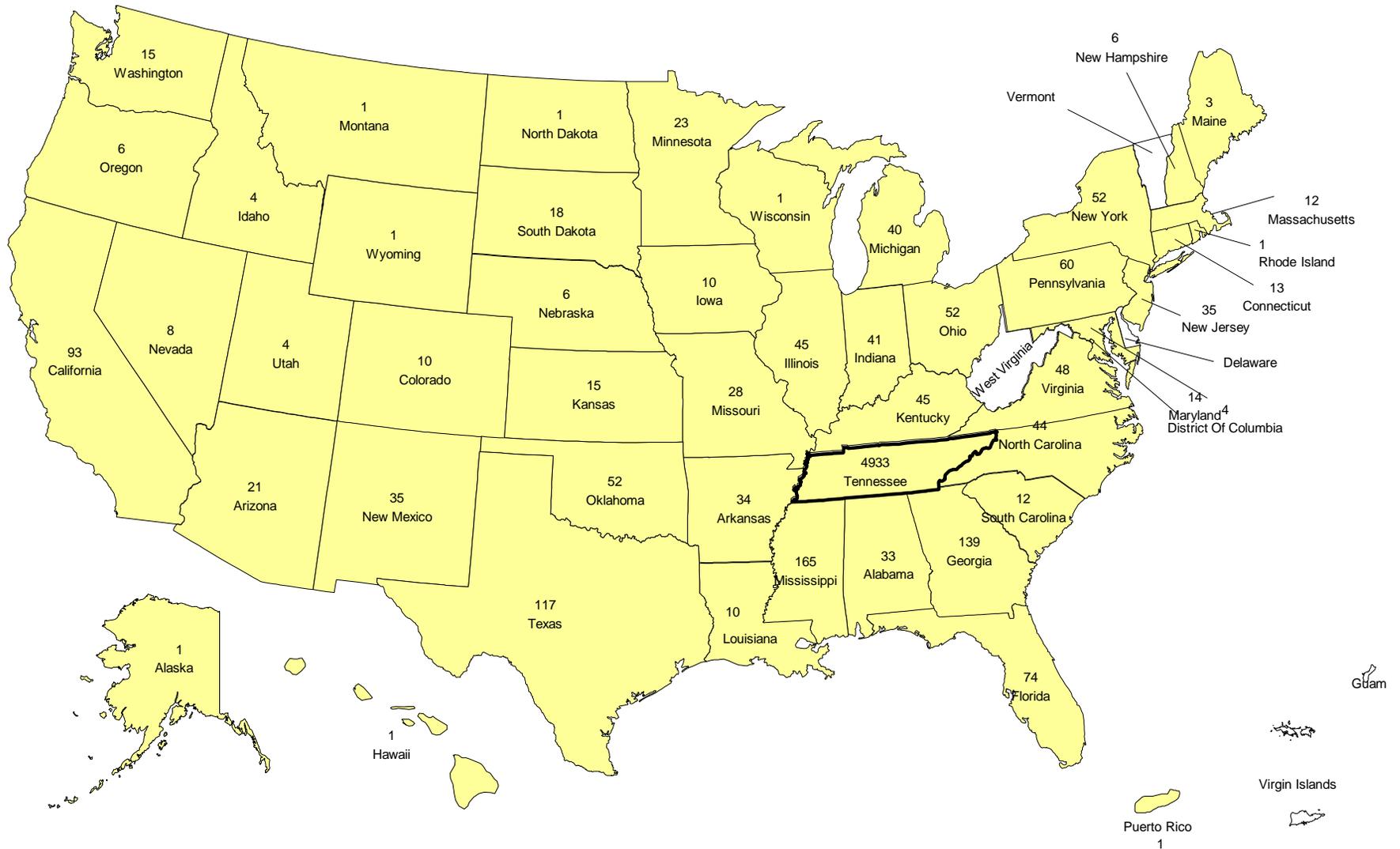


Figure 4. Call Volume, by Caller's State of Residence, Year 5



Overall, TBH received calls from 493 unique counties across 48 states, Puerto Rico, the American Samoa, and the Canadian provinces of Manitoba and Ontario.

(8) Caller's Relationship to Mother

Table 8. Number and Proportion of Calls, by Caller's Relationship to Mother (N=6015)

Relationship to Mother	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year 5 Totals	Year 5 Percent
Self	1526	1462	1407	1323	5718	95.1%
Spouse or partner	51	58	48	52	209	3.5%
Family or household member	16	15	10	18	59	1.0%
Healthcare provider	8	6	9	6	29	0.5%
TOTALS:	1601	1541	1474	1399	6015	100%

Not applicable n=322

Note: Percent total may not sum to 100 due to rounding.

During Year 5, the majority (95.1%) of callers to the TBH were the mothers.

(9) Maternal Age, Race, and Ethnicity

Table 9A. Number and Proportion of Calls, by Maternal Age (N=4467)

Maternal Age	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year 5 Totals	Year 5 Percent
< 15	0	0	0	0	0	0.0%
15 - 17	3	5	1	2	11	0.2%
18 - 20	22	28	29	34	113	2.5%
21 - 25	179	186	188	152	705	15.8%
26 - 30	502	488	449	427	1866	41.8%
31 - 35	344	373	380	315	1412	31.6%
36 - 40	95	93	56	75	319	7.1%
41 - 45	12	2	15	8	37	0.8%
≥ 46	0	2	2	0	4	0.1%
TOTALS:	1157	1177	1120	1013	4467	100%

Missing or Not applicable n=1870

Note: Percent total may not sum to 100 due to rounding.

During Year 5, call volume was highest (41.8%) among mothers between 26 and 30 years.

Table 9B. Number and Proportion of Calls, by Maternal Race (N=4482)

Maternal Race	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
White	907	909	896	764	3476	77.6%
Black	173	181	158	159	671	15.0%
Multiple Races	67	62	45	55	229	5.1%
Asian	19	32	23	19	93	2.1%
Native Hawaiian/Pacific Islander	1	2	1	4	8	0.2%
American Indian/Alaskan Native	1	1	1	2	5	0.1%
TOTALS:	1168	1187	1124	1003	4482	100%

Missing or not applicable n=1855

Note: Percent total may not sum to 100 due to rounding.

TBH callers were asked to report maternal race during the initial call. Of those who reported race, 77.6% were white, followed by black (15%).

Table 9C. Number and Proportion of Calls, by Maternal Ethnicity (N=4922)

Ethnicity	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
Not Hispanic	1201	1205	1215	1089	4710	95.7%
Hispanic	66	65	38	43	212	4.3%
TOTALS:	1267	1270	1253	1132	4922	100%

Missing or not applicable n=1415

Of those with ethnicity documented, 4.3% of callers identified as Hispanic/Latina.

(10) Mother's Pregnancy History**Table 10A. Number and Proportion of Calls, by Caller's Pregnancy History (N=1420)**

Number of Prior Pregnancies	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
1	236	229	210	157	832	58.6%
2	111	100	104	89	404	28.5%
3	30	33	29	23	115	8.1%
4	12	17	11	9	49	3.5%
5	6	4	1	0	11	0.8%
6	0	0	1	2	3	0.2%
7	0	0	1	0	1	0.1%
8	0	1	0	0	1	0.1%
9	1	0	0	0	1	0.1%
10 +	0	0	1	2	3	0.2%
TOTALS	396	384	358	282	1420	100%

Missing or not applicable n=4917

Note: Percent total may not sum to 100 due to rounding.

Of those responding, 58.6% women reported one prior pregnancy.

Table 10B. Number and Proportion of Calls, by Prior Live Births (N=2393)

Number of Prior Live Births	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
1	385	385	357	330	1457	60.9%
2	162	164	170	153	649	27.1%
3	62	43	47	42	194	8.1%
4	13	22	14	16	65	2.7%
5	7	8	3	1	19	0.8%
6	0	2	1	4	7	0.3%
7	0	0	0	0	0	0.0%
8	0	1	0	0	1	0.04%
9	0	0	0	0	0	0.0%
10 +	0	0	0	1	1	0.04%
TOTALS:	629	625	592	547	2393	100%

Missing or not applicable n=3944

Note: Percent total may not sum to 100 due to rounding.

Table 10B shows the number and proportion of calls by prior live births of the caller. During Year 5, about 61% of women had only one previous live birth.

Table 10C. Number and Proportion of Calls, by Infant's Gestational Age* at Birth (N=4549)

Gestational Age	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
< 37 weeks (pre-term)	47	60	66	67	240	5.3%
37 to <39 weeks (early term)	178	202	216	169	765	16.8%
39 to <41 weeks (full term)	889	863	825	751	3328	73.2%
41 to <42 weeks (late term)	59	55	52	46	212	4.7%
> 42 weeks (post term)	2	0	1	1	4	0.1%
TOTALS:	1175	1180	1160	1034	4549	100%

*Recommended classifications from American College of Obstetricians and Gynecologists

Missing or not applicable n=1788

Note: Percent total may not sum to 100 due to rounding.

Most (73.2%) mothers reported delivering at full-term. Only 5.3% reported delivering prematurely.

(11) Baby's Birth Information

Table 11A. Number and Proportion of Calls, by Infant's Age during Initial Call (N=5169)

Age of Infant	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
< 1 week	302	316	281	306	1205	23.3%
1 week - < 1 month	295	325	288	257	1165	22.5%
1 - < 3 months	271	286	290	275	1122	21.7%
3 - < 6 months	149	220	227	174	770	14.9%
6 - < 9 months	95	96	118	103	412	8.0%
9 - < 12 months	31	50	57	67	205	4.0%
12 - 18 months	44	49	59	51	203	3.9%
19 - 24 months	22	19	18	28	87	1.7%
TOTALS:	1209	1361	1338	1261	5169	100%

Missing n=1168

Callers were asked to indicate the age of infant during initial call to the TBH. Just under half (45.8%) of calls were made when the baby was less than 1 month old.

Table 11B. Number and Proportion of Calls, by Delivery Method (N=1015)

Delivery Method	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
Vaginal	238	240	202	130	810	79.8%
Cesarean	69	45	44	47	205	20.2%
TOTALS:	307	285	246	177	1015	100%

Missing or not applicable n=5322

Table 11B shows the number and proportion of calls by delivery method during Year 5. Almost 80% of women indicated that they had a vaginal delivery. Additionally, there were 23 women who called who were pregnant at time of the call (delivery method recorded as 'not yet born'). These instances were documented but were excluded with regard to the table above.

(12) Feeding Information

Table 12A. Number and Proportion of Calls, by Breastfeeding Status (N=1765)

Breastfeeding Status	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
Breastfeeding exclusively	264	247	212	172	895	50.7%
Both breastfeeding and pumping	128	117	88	68	401	22.7%
Breastfeeding with supplemental nutrition	80	94	85	62	321	18.2%
Pumping exclusively	35	41	37	23	136	7.7%
Breastfeeding with complementary foods	NA	1	3	8	12	0.7%
TOTALS:	507	500	425	333	1765	100%

Missing or not applicable n=4572

TBH collected information about the breastfeeding status of mothers during initial call. Of the mothers who disclosed their breastfeeding status, just over half (50.7%) were breastfeeding exclusively.

Table 12B. Number and Proportion of Callers Breastfeeding within 24 Hours of Delivery (N=1245)

Breastfeeding within 24 Hours?	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
Yes	358	342	274	222	1196	96.1%
No	17	13	13	6	49	3.9%
TOTALS:	375	355	287	228	1245	100%

Missing or not applicable n=5092

Table 12B shows number and proportion of callers who indicated breastfeeding within 24 hours of delivery. Of the callers who responded, 96.1% of mothers had begun breastfeeding their baby within 24 hours of birth.

(13) Reasons for Calling

Table 13A. Number and Proportion of Calls, by Primary Reason for Call (N=5840)

Reasons for Calling	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
Breast-Related Problems	370	323	271	291	1255	21.5%
Maternal Health Behaviors	224	250	278	231	983	16.8%
Lactation or Milk Concerns	200	179	207	156	742	12.7%
Breastfeeding Management	142	131	146	130	549	9.4%
Infant Health Concerns	162	115	94	87	458	7.8%
Milk Expression	135	130	101	143	509	8.7%
Breastfeeding Technique	96	91	94	82	363	6.2%
Infant Health Behaviors	61	69	66	231	427	7.3%
Breastfeeding Support	57	55	54	58	224	3.8%
Maternal Health Concerns	39	52	34	25	150	2.6%
Medical Condition (Infant)	25	34	25	30	114	2.0%
Supplemental Nutrition	15	23	14	14	66	1.1%
TOTALS:	1526	1452	1384	1478	5840	100%

Missing n=497

Note: Percent total may not sum to 100 due to rounding.

Callers were asked to indicate their primary reason for calling the TBH, which TBH categorized into the reasons above (please see Appendix A for classification of individual reasons). During Year 5, 21.5% of calls were regarding breast-related problems (e.g. breast or nipple pain, breast engorgement, or sore nipples) followed by maternal health behaviors (16.8%). The top five individual reasons for calling the TBH in Year 5 were: medications and breastfeeding, breast or nipple pain, not making enough milk, breast engorgement, and baby feeding too much/too little.

Table 13B. Number and Proportion of Calls: Top 10 Additional Reasons for Calling (N=395)

Top Additional Reasons for Calling	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals
Pumping	17	18	27	17	79
Breast engorgement	14	11	17	14	56
Not making enough milk	17	9	9	10	45
Breast or nipple pain	7	13	13	11	44
Breastfeeding technique	14	8	11	6	39
Overactive letdown/too much milk	6	6	11	8	31
Appropriate feeding by age/weight	3	6	11	9	29
Medications and breastfeeding	6	7	4	8	25
Weaning	7	6	4	7	24
Maternal Sickness	7	4	6	6	23
TOTALS:	98	88	113	96	395

In addition to the primary reason for calling, lactation professionals noted additional questions that were brought up during the course of the call. Many mothers did not bring up additional questions. Top additional concerns were related to pumping and breast engorgement.

(14) Outcomes at Follow-Up

At the end of each initial call to the TBH, the lactation professionals asked the callers if they intended to continue to breastfeed (results in Table 14A). Continuation of breastfeeding was also asked during the 4-week, 8-week, and 12-week follow up calls (Table 14B).

Also, the lactation professionals asked the caller if they felt more comfortable and/or confident with breastfeeding by the end of the initial call (Table 14D). Similar to the question regarding the continuation of breastfeeding, caller confidence and comfort was also assessed by TBH staff at 4-week, 8-week, and 12-week follow-up calls (Table 14E).

During Year 5, TBH attempted 5,174 calls to clients to follow-up about breastfeeding status; only 1,137 (22%) callers were reached for follow up.

Table 14A. Number and Proportion of Calls, by Intention to Continue Breastfeeding (N=5249)

Intention to Continue Breastfeeding	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
Yes	1396	1331	1244	1182	5153	98.2%
No	27	20	27	22	96	1.8%
TOTALS:	1423	1351	1271	1204	5249	100%

Not applicable n=1088

When asked about the intention to continue breastfeeding, 5,153 (98.2%) callers reported that they intended to continue breastfeeding at the end of the initial call.

Table 14B. Caller’s Breastfeeding Status, by Follow-Up Period

Follow-Up Period	Calls Attempted	Not Reached	Reached N (%)	Answered Question	Still Breastfeeding N (%)
4 week	2020	1496	524 (25.9%)	463	343 (74.1%)
8 week	1568	1199	369 (23.5%)	318	208 (65.4%)
12 week	1264	1020	244 (19.3%)	217	134 (61.8%)

Notes: Reached = # of callers reached out of # of calls attempted
 Still breastfeeding = # of callers still breastfeeding out of # of callers who answered the question

At the 4-week follow-up, 74.1% of callers were still breastfeeding. This proportion drops to 65.4% during the 8-week follow-up, and to 61.8% at the 12 week follow up.

Table 14C. Breastfeeding: Exclusive or Supplemental, by Follow-Up Period

Follow-Up Period	Number Still Breastfeeding (from Table 14B)	Answered Question	Supplemented N (%)	Exclusive N (%)
4 week	343	264	71 (26.9%)	193 (73.1%)
8 week	208	148	39 (26.4%)	109 (73.6%)
12 week	134	91	24 (26.4%)	67 (73.6%)

Callers who indicated that they were still breastfeeding during the follow-up call (Table 14B) were then asked if they were breastfeeding exclusively or with supplemental nutrition.

Of the callers who indicated that they were still breastfeeding, more mothers were exclusively breastfeeding their infants during each follow-up period.

Table 14D. Number and Proportion of Callers Confident or Comfortable Breastfeeding at End of Initial Call (N=5183)

Comfort with Breastfeeding	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 5 Totals	Year 5 Percent
Yes	1301	1346	1324	1165	5136	99.1%
No	10	13	13	11	47	0.9%
TOTALS:	1311	1359	1337	1176	5183	100%

Not applicable n=1154

TBH staff reported that almost all (99.1%) callers had increased comfort and confidence with breastfeeding by the end of their interaction.

Table 14E. Caller’s Confidence and Comfort with Breastfeeding, by Follow-Up Period

Follow-Up Period	Calls Attempted	Not Reached	Reached N (%)	Answered Question	Improved N (%)	Did Not Improve N (%)
4 week	2020	1496	524 (25.9%)	108	107 (99.1%)	1 (0.9%)
8 week	1568	1199	369 (23.5%)	48	48 (100%)	0 (0.0%)
12 week	1264	1020	244 (19.3%)	36	36 (100%)	0 (0.0%)

Notes: Reached = # of callers reached out of # of calls attempted;
 Improved= # of callers with improved confidence or confidence breastfeeding out of # of callers who answered the question

At the 4-week follow-up, 99.1% of callers reported increased confidence and comfort with breastfeeding. At the 8- and 12-week follow-up, this number rose to 100%.

(15) Client Satisfaction with Services

Clients rated TBH services at different intervals: 4 weeks, 8 weeks, and 12 weeks after services had been rendered. Callers were asked to rate their overall satisfaction with hotline services and indicate their likelihood to recommend TBH services to another person.

Table 15. Caller’s Satisfaction and Likelihood to Recommend the TN Breastfeeding Hotline, by Follow-Up Period

Follow-Up Period	Calls Attempted	Not Reached	Reached N (%)	Satisfaction with TBH		Recommend TBH	
				Answered Question	Satisfied N (%)	Answered Question	Likely to Recommend N (%)
4 week	2020	1496	524 (25.9%)	269	268 (99.6%)	285	285 (100%)
8 week	1568	1199	369 (23.5%)	185	185 (100%)	185	185 (100%)
12 week	1264	1020	244 (19.3%)	125	125 (100%)	130	130 (100%)

Notes: Reached = # of callers reached out of # of calls attempted;
 Satisfied = # of callers satisfied or very satisfied with TBH services out of # of callers who answered the question
 Likely to Recommend = # of callers likely or very likely to recommend TBH services out of # of callers who answered the question.

Callers were asked to rate their level of satisfaction of TBH from 1 (very dissatisfied) to 5 (very satisfied). Overall, clients were satisfied with TBH services during each follow-up period (range: 99.6-100%). During each follow-up, callers were also asked to indicate their likelihood to recommend the TBH to others (1 - very unlikely to 5 - very likely). Overall, callers were likely to recommend TBH services to another person.

(16) Texting Follow-Up

If callers cannot be reached by telephone for follow up, TBH staff sent an automated text message prompting the caller to take a brief four-question survey and reminding them to call the TBH if they have any additional questions. Unlike the telephone follow-ups, the texts cannot be separated by time period.

Table 16A. Texting Follow-Up: Caller's Breastfeeding Status (N=61)

Follow-Up Method	Texts Received	Yes N (%)	No N (%)
Text	61	53 (86.9%)	8 (13.1%)

During Year 5, the TBH received 61 follow-up texts regarding breastfeeding status. Of those responses received, 53 (86.9%) responded that they were still breastfeeding.

Table 16B. Caller's Satisfaction with TN Breastfeeding Hotline (N=15)

Follow-Up Method	Texts Received	Satisfied N (%)
Text	62	61 (98.4%)

Note: Satisfied = # of callers satisfied or very satisfied with TBH services

TBH received 62 responses regarding caller's satisfaction with services provided. Almost all (98.4%) responded that they were satisfied with services received.

Table 16C. Caller's Likelihood to Recommend TN Breastfeeding Hotline (N=59)

Follow-Up Method	Texts Received	Likely to Recommend N (%)
Text	59	57 (96.6%)

Note: Likely to Recommend = # of callers likely or very likely to recommend TBH services

TBH received 59 responses with regard to caller's likelihood to recommend the TBH to others, with 96.6% indicating that they were likely or very likely to recommend the TBH to another person.

Table 16D. Caller's Increase in Confidence/Comfort with Breastfeeding (N=60)

Follow-Up Method	Texts Received	Yes N (%)	No N (%)
Text	60	55 (91.7%)	5 (8.3%)

TBH received 60 responses with regard to caller's increase in confidence and comfort with breastfeeding. Of the 60 texts received, 55 (91.7%) indicated that they were more comfortable and confident breastfeeding.

Our Team

Meri Armour – President, Le Bonheur Children’s Hospital
Meri provides oversight over the entire hospital.

Jennilyn Utkov – Senior Director, Community Development
Jennilyn provides oversight to the Methodist Le Bonheur Community Outreach (MLCO) division.

August Marshall, M.A. – Program Evaluator II
August updates iCarol survey questions as needed, provides general iCarol support to the TBH staff, analyzes hotline data, and helps write and submit quarterly and annual reports.

Cathy Marcinko, M.A. -- Grant Development Manager
Cathy assists division departments in researching, developing and submitting funding proposals, and with other assignments, as needed. She has a Masters’ Degrees in Community Planning and in Teaching, and has a BA in Art History.

Christina M. Underhill, Ph.D. -- Director, Program Evaluation
Christina coordinated the creation of the TBH quarterly report format and assisted with the development of the TBH quality improvement plan. She advises on the collection of outcome measures and ensures proper data management.

Gary R. Cook, LCSW – Director, MLCO Grant Administration Department
Gary co-authored the TN Breastfeeding Hotline Proposal. He provides contract related and fiscal oversight of the project.

Nicole Gottier, M.A. -- Grant Reimbursement Supervisor
Nicole tracks monthly expenses for the program for correctness, as well as alignment with budget projections, and creates and submits monthly invoices to the State.

Sandra Madubonwu MSN, RN, CLC – Director, Maternal Child Department.
Sandra was involved in the proposal process for the TN Breastfeeding Hotline and played an instrumental role in implementing the program. She provides administrative oversight to all the programs within the Maternal Child Department, including the TBH.

Helen Scott, RN, IBCLC, RLC -- Project Coordinator, Tennessee Breastfeeding Hotline
Helen coordinates the staff and ensures that the Hotline is working to meet identified purposes and goals.

Medical Lactation Consultant

Dr. Allison Stiles, Internal Medicine & Pediatrics, MD, IBCLC, RLC

Lactation Consultants and Counselors

CLCs (4)	IBCLCs (10)
<p>Sandra Madubonwu, MSN, RN, CLC LaSaundra Gentry, MA, CLC Katie Houston, RN BSN, CLC Cymon Miller, CLC</p>	<p>Helen Scott, RN, IBCLC, RLC Victoria Roselli, BS, IBCLC, RLC Pam Avant, BSN, IBCLC, RLC, RN Julie Bridger, RN, IBCLC, RLC Lakisha King Windle, RN, IBCLC, RLC Holly Sparkman, RN, BSN, IBCLC, RLC Lori Jill Lewis, BSN, IBCLC, RN Elizabeth Pletz, BSN, IBCLC, RN Crystal Gilreath, MS, IBCLC Christie Evans, RN, IBCLC</p>

Tennessee Breastfeeding Hotline Community Advisory Board (CAB)

Tennessee Department of Health – Central Office	Community Organizations
<p>Melissa Barbour Margaret T. Lewis Laura Campbell Sierra Mullen</p>	<p>Tiana Pyles, BSTARS</p>
Le Bonheur Community Health and Well-Being	Academic Affiliation
<p>Jennilyn Utkov Sandra Madubuwu Helen Scott Crystal Gilreath Victoria Roselli Lakisha King Windle Christina Underhill Cathy Marcinko August Marshall Marilyn Smith Shandrian Guinn Lisa Rogers Trina Gillam Lauren Robinson Inayah Ahmed</p>	<p>Dr. Genae Strong, University of Memphis - School of Nursing Jennifer Russell, University of Tennessee – School of Nursing</p>
Tennessee Department of Health – Metro Regions	Hospital Affiliation or Private Practice
<p>Jolene Hare, Hamilton County Health Department Kelly Whipker, Metro Nashville Health Department Robin Penegar, Knox County Health Department Becky Burris, Sullivan County Health Department Jennifer Kmet, Shelby County Health Department Katie Baroff, Shelby County WIC</p>	<p>Katy Spurlock, The Urban Child Institute Dr. Allison Stiles, Internal Medicine & Pediatrics – Memphis Dr. Anna Morad, Vanderbilt Hospital Ginger Carney, St. Jude Research Hospital Amanda Helton, Le Bonheur Children’s Hospital Dr. Lauren Mutrie, Le Bonheur Children’s Hospital</p>

APPENDIX A. Categorization of the Primary Reason for Calling the Tennessee Breastfeeding Hotline

CATEGORIES	REASONS / ISSUES
Supplemental Nutrition: Issues related to complementing breastfeeding with expressed human milk or some other fluid or food	<ul style="list-style-type: none"> • Vitamin D supplementation • Supplemental feeding
Milk Expression: Issues related to taking breastmilk from the mother’s breast without the baby needing to suckle.	<ul style="list-style-type: none"> • Breast pumps and rentals • Exclusive pumping • Milk storage
Breast-Related Problems: Issues or problems mother can experience that are commonly associated with breastfeeding	<ul style="list-style-type: none"> • Breast mass • Breast engorgement • Sore nipples • Breast or nipple pain • Nipple abnormality
Breastfeeding Management: Issues related to the process of maintaining or integrating breastfeeding within a mother’s routine or circumstances	<ul style="list-style-type: none"> • Tandem nursing • Breastfeeding while pregnant • Working and breastfeeding • Managing multiple breastfeeding babies • Weaning • Bottle feeding • Returning to work/school • Baby feeding to much / too little • Breastfeeding device/equipment (e.g. nipple shields)
Breastfeeding Support: Resources, guidance, or laws that can assist with breastfeeding	<ul style="list-style-type: none"> • Public breastfeeding • Donor milk • TN breastfeeding laws • Seeking resources • Pre-birth information / counseling
Breastfeeding Technique: Issues related to mother’s breastfeeding skill	<ul style="list-style-type: none"> • Inability to latch • Breastfeeding technique • Clicking / Noisy nursing
Medical Condition (Infant): Issues related to an infant’s disease, disorder, illness, or complication diagnosed by a health care provider that can impact mother’s ability to breastfeed	<ul style="list-style-type: none"> • Feeding baby with hypotonia • Feeding baby with Down Syndrome • Feeding baby with cleft lip / palate • Jaundice • Late preterm newborn • Managing premature infant breastfeeding • Tongue-tie • Allergies • Baby spitting up (reflux)

<p>Infant Health Behaviors: Issues related to infant's actions that can impact mother's ability to breastfeed</p>	<ul style="list-style-type: none"> • Baby biting breast • Baby refusing to nurse • Distraction during breastfeeding • Sleepiness
<p>Maternal Health Behaviors: Issues related to the practices (choices), of the mother that can impact her overall health and ability to breastfeed</p>	<ul style="list-style-type: none"> • Alcohol use • Substance abuse / Illicit drug use • Smoking / Smoking cessation • Exercise and breastfeeding • Diet • Medications and breastfeeding
<p>Lactation or Milk Concerns: Issues related to mother's anxiety or worry about milk production or quality</p>	<ul style="list-style-type: none"> • Overactive letdown / too much milk • Not making enough milk • Re-lactation • Adoption • Color change in milk
<p>Infant Health Concerns: Issues related to mother's anxiety or worry about infant's health state or condition</p>	<ul style="list-style-type: none"> • Fussiness / Colic • Gassiness • Appropriate feeding by age / weight • Abnormal stools / voids • Lethargy • Weight concerns • Sick baby • Constipation
<p>Maternal Health Concerns: Issues related to mother's anxiety or worry about her own health state or condition</p>	<ul style="list-style-type: none"> • Maternal postpartum vaginal bleeding • Menstruation / Return of menstrual cycle • Maternal sickness • Maternal postpartum depression
<p>Other: An issue indicated by mother that is other than what is currently listed</p>	<ul style="list-style-type: none"> • Specify